

AMENDMENTS TO THE CLAIMS

1-116. (Canceled)

117. (New) A method of processing adipose tissue and a cell population that comprises adipose-derived stem cells for reintroduction into a patient, comprising:

removing a first portion of adipose tissue that comprises adipose-derived stem cells from a patient;

introducing said removed first portion of adipose tissue into a self-contained cell processing unit configured to maintain a closed pathway;

separating a cell population that comprises adipose-derived stem cells from mature adipocytes and connective tissue present in the first portion of adipose tissue that was removed from said patient such that said mature adipocytes and said connective tissue are substantially separated from said cell population that comprises adipose-derived stem cells within said self-contained cell processing unit while maintaining said closed pathway;

concentrating said cell population that comprises adipose-derived stem cells within said self-contained cell processing unit while maintaining said closed pathway;

mixing said concentrated cell population that comprises adipose-derived stem cells with a second portion of adipose tissue from said patient; and

reintroducing said mixture of said concentrated cell population that comprises adipose-derived stem cells and said second portion of adipose tissue into said patient.

118. (New) The method of Claim 117, wherein said concentrated cell population that comprises adipose derived stem cells is reintroduced into said patient while maintaining a closed pathway.

119. (New) The method of Claim 117, wherein said first or second portion of adipose tissue that is removed from said patient is lipoaspirate.

120. (New) The method of Claim 117, wherein said first or second portion of adipose tissue that is removed from said patient is obtained by excisional lipectomy.

121. (New) The method of Claim 117, wherein said concentrated cell population that comprises adipose-derived stem cells is reintroduced into said patient subcutaneously, intravenously, intramuscularly, or intraperitoneally.

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122. (New) The method of Claim 117, further comprising a disaggregation step, wherein said cell population that comprises adipose-derived stem cells contained in said removed first portion of adipose tissue is mechanically or enzymatically disaggregated from said mature adipocytes and connective tissue present in said first portion of adipose tissue that was removed from said patient prior to separation.

123. (New) The method of Claim 117, wherein said cell population that comprises adipose-derived stem cells is separated from said mature adipocytes and connective tissue present in the first portion of adipose tissue that was removed from said patient by employing a filter.

124. (New) The method of Claim 123, wherein said filter is a spinning membrane filter.

125. (New) The method of Claim 123, wherein said filter comprises an antibody.

126. (New) The method of Claim 125, wherein said antibody is selected from the group consisting of AP2, CD3, CD19, and CD11b.

127. (New) The method of Claim 117, wherein said cell population that comprises adipose-derived stem cells is separated from said mature adipocytes and connective tissue present in the adipose tissue that was removed from said patient by centrifugation.

128. (New) The method of Claim 122, wherein said disaggregation step comprises an enzymatic digestion.

129. (New) The method of Claim 128, wherein said enzymatic digestion comprises a collagenase.

130. (New) The method of Claim 128, wherein said enzymatic digestion comprises a neutral protease.

131. (New) The method of Claim 128, wherein said enzymatic digestion comprises trypsin.

132. (New) The method of Claim 117, wherein said adipose-derived stem cells in said concentrated cell population that comprises adipose-derived stem cells are at least 0.1% of the cellular component.

133. (New) The method of Claim 117, wherein said adipose-derived stem cells in said concentrated cell population that comprises adipose-derived stem cells are between about 2% and about 12% of the cellular component.

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134. (New) The method of Claim 117, wherein said concentrated cell population that comprises adipose-derived stem cells has a concentration of about 2×10^7 cells/100ml of adipose tissue.

135. (New) The method of Claim 117, wherein said concentrated cell population that comprises adipose-derived stem cells comprises endothelial precursor cells.

136. (New) The method of Claim 117, wherein said patient has a disease or injury selected from the group consisting of slow/non-union fractures, osteoporosis, osteogenesis imperfecta, liver failure, hepatitis B, hepatitis C, myocardial infarction, renal disease, retinal disease, ulcers, muscle disorders, cartilage disorder, lung disease, diabetes, intestinal disorder, central nervous system disorder, spinal cord injury, Parkinson's disease, Alzheimer's disease, chronic heart disease, and stroke.

137. (New) The method of Claim 117, wherein said patient has wrinkles, divots, or pockmarks.

138. (New) The method of Claim 117, wherein said patient has liver injury.

139. (New) The method of Claim 138, further comprising measuring liver regeneration.

140. (New) The method of Claim 117, further comprising providing said concentrated cell population that comprises adipose-derived stem cells or said patient an additive.

141. (New) The method of Claim 140, wherein said additive is a tissue or tissue fragment.

142. (New) The method of Claim 141, wherein said additive is demineralized bone.

143. (New) The method of Claim 140, wherein said additive is a compound of the thiaglitazone family.

144. (New) The method of Claim 140, wherein said additive is insulin.

145. (New) The method of Claim 140, wherein said additive is an exogenous DNA.

146. (New) The method of Claim 140, wherein said additive is a biological or artificial scaffold.